Claims

What is claimed is:

A direct light imaging compound comprising:
a matrix, and
an antenna,

wherein the antenna comprises a compound selected from the group consisting of compounds comprising a phthalocyanine chromophore and compounds comprising a naphthalocyanine chromophore, and wherein the antenna is dissolved in the matrix.

 The compound of claim 1 further comprising: a color former, and an activator,

wherein one of the activator and the color former is soluble in the matrix or matrix precursor at ambient conditions;

wherein the soluble of the activator and the color former is dissolved in the matrix; and

wherein the other of the activator and the color former is substantially uniformly distributed in the matrix.

3. The compound of claim 1 wherein the antenna comprises a compound chosen from the group consisting of (A) silicon 2,3 naphthalocyanine bis(trihexylsilyloxide); (B) derivatives of 2,3 naphthalocyanine; (C) derivatives of silicon phthalocyanine; (D) derivatives of benzophthalocyanines; (E)

$$MPC \xrightarrow{\left(SO_3H\right)_X} \begin{pmatrix} O_2N & & \\ &$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; R^1 , R^2 , W^1 , and W^2 are independently H or optionally substituted alkyl, aryl, or aralkyl; R^3 is an aminoalkyl group; L is a divalent organic linking group; x, y, and t are each independently 0.5 to 2.5; and (x+y+t) is from 3 to 4; (F)

$$\begin{array}{c|c} \text{MPc} & & \\ \hline \\ \text{S} & \hline \\ \\ \text{R}^1 & \\ \end{bmatrix}_q^{} \\ \\ y$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; each R¹ independently is H or an optionally substituted alkyl, aryl, or aralkyl; each L¹ independently is a divalent organic linking group; Z is an optionally substituted piperazinyl group; q is 1 or 2; x and y each independently have a value of 0.5 to 3.5; and (x+y) is from 2 to 5; and (G) 800NP.

- 4. The compound of claim 1 wherein the antenna is designed to readily absorb laser radiation of a predetermined frequency.
- 5. The compound of claim 1 wherein the antenna is designed to readily absorb infrared radiation of a predetermined frequency.
- 6. A method for preparing a direct imaging material, the method comprising:

providing a binder, a dye, a color developer, and an antenna,

wherein the antenna is soluble in the binder and selected from the group consisting of compounds comprising a phthalocyanine chromophore and compounds comprising a naphthalocyanine chromophore;

wherein the dye changes color when reacted with the color developer; and

wherein one of the dye and the color developer is soluble in the binder at ambient conditions;

dissolving the antenna and the binder soluble compound in the binder; and substantially uniformly distributing the other of the dye and the color developer compound in the binder.

- 7. The method of claim 6 wherein the antenna is designed to readily absorb infrared radiation of a predetermined frequency.
- 8. The method of claim 6 wherein the antenna is designed to readily absorb laser radiation of a predetermined frequency.
- 9. The method of claim 6 wherein the antenna is selected from the group consisting of (A) silicon 2,3 naphthalocyanine bis(trihexylsilyloxide); (B) derivatives of 2,3 naphthalocyanine; (C) derivatives of silicon phthalocyanine; (D) derivatives of benzophthalocyanines; (E)

$$MPC \xrightarrow{\left(SO_3H\right)_x} \begin{pmatrix} O_2N & & \\ S & & \\ R^1 & & \\ &$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; R^1 , R^2 , W^1 , and W^2 are independently H or optionally substituted alkyl, aryl, or aralkyl; R^3 is an aminoalkyl group; L is a divalent organic linking group; x, y, and t are each independently 0.5 to 2.5; and (x+y+t) is from 3 to 4; (F)

$$MPc \xrightarrow{(SO_3H)_X} L^1 \xrightarrow{q} Z$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; each R¹ independently is H or an optionally substituted alkyl, aryl, or aralkyl; each L¹ independently is a divalent organic linking group; Z is an optionally substituted piperazinyl group; q is 1 or 2; x and y each independently have a value of 0.5 to 3.5; and (x+y) is from 2 to 5; and (G) 800NP.

10. An image recording medium, the medium comprising:

a substrate; and

an imaging composition comprising, an antenna and a solvent,

wherein the antenna comprises a compound selected from the group consisting of compounds comprising a phthalocyanine chromophore and compounds comprising a naphthalocyanine chromophore, and

wherein the antenna is dissolved in the solvent.

11. The image recording medium of claim 10 wherein the imaging composition further comprises:

a dye; and a color initiator;

wherein the dye changes color when mixed with the color initiator;

wherein one of the color initiator and the dye is soluble in the solvent at ambient conditions;

wherein the other of the color initiator and the dye is substantially insoluble in the solvent at ambient conditions:

wherein the substantially insoluble component is substantially uniformly distributed in the solvent; and

wherein the imaging composition is directly or indirectly applied to the substrate.

- 12. The medium of claim 11 wherein the antenna readily absorbs infrared radiation of a predetermined frequency.
- 13. The medium of claim 11 wherein the antenna readily absorbs laser radiation of a predetermined frequency.
- 14. The medium of claim 11 wherein the antenna is selected from the group consisting of (A) silicon 2,3 naphthalocyanine bis(trihexylsilyloxide); (B) derivatives of 2,3 naphthalocyanine; (C) derivatives of silicon phthalocyanine; (D) derivatives of benzophthalocyanines; (E)

$$MPC \xrightarrow{(SO_3H)_x} \begin{pmatrix} O_2N & & & \\ & S & & \\ &$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; R^1 , R^2 , W^1 , and W^2 are independently H or optionally substituted alkyl, aryl, or aralkyl; R^3 is an aminoalkyl group; L is a divalent organic linking group; x, y, and t are each independently 0.5 to 2.5; and (x+y+t) is from 3 to 4; (F)

MPc
$$S = \begin{bmatrix} SO_3H)_x \\ S = \begin{bmatrix} N \\ R^1 \end{bmatrix}_q$$

where M is a metal or hydrogen; Pc is a phthalocyanine nucleus; each R^1 independently is H or an optionally substituted alkyl, aryl, or aralkyl; each L^1 independently is a divalent organic linking group; Z is an optionally substituted piperazinyl group; q is 1 or 2; x and y each independently have a value of 0.5 to 3.5; and (x+y) is from 2 to 5; and (G) 800NP.

- 15. The medium of claim 11 wherein the substrate comprises paper.
- 16. The medium of claim 11 wherein the substrate comprises a compact disc or DVD.
- 17. An imaging means, the means comprising:
 - a means for absorbing energy;
 - a means for forming color;
 - a means for initiating a color change in the color forming means;
 - a means for binding the absorbing means, the color forming means, and the initiating means;

wherein the absorbing means is dissolved in the binder;

- wherein one of the means for forming color and the means for initiating is soluble in the means for binding at ambient conditions;
- wherein the other of the means for forming color and the means for initiating is substantially insoluble in the means for binding at ambient conditions; and
- wherein the insoluble component is substantially uniformly distributed in the binder.

- 18. The means of claim 17 wherein the means for absorbing readily absorbs laser radiation of a predetermined frequency.
- 19. The means of claim 18 wherein the means for absorbing readily absorbs infrared radiation of a predetermined frequency.